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FOR TERRACE MAINTENANCE IN THE SOUTH



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The regular tillage operations on terraced fields should recondition the terraces as well as prepare the land for crops. Terrace maintenance then becomes an integral part of field culture and not a separate or extra practice. Necessary maintenance is also secured periodically with little, if any, additional cost. When land is prepared by flat breaking or complete plowing, terrace maintenance becomes a part of land preparation at no extra cost.

Farming practices on terraced fields should also be adjusted so that not only the terraces but also the intervals between terraces are protected. Soil-conserving tillage and cropping practices will minimize damage to terraces and erosion between them and will reduce the amount of the maintenance work needed.

Plowing

FOR TERRACE MAINTENANCE IN THE SOUTH

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TERRACING is now accepted as an effective measure of soil defense for most of the sloping cropland in the South. It is folly, however, to build terraces and not maintain them. The effectiveness of even well-constructed terraces depends on their being properly maintained and farmed after construction.

The good effects of proper maintenance are just as striking as the ill effects of improper maintenance. Terraces that are slightly under-size immediately after construction can be enlarged and maintained by the methods of plowing recommended in this publication. When terraces are neglected the rate of decline in their capacity and effectiveness is appalling. They may be ruined in a single season and become detrimental to a field rather than beneficial.

Soil-conserving farming practices are required for the most economical and practical terrace maintenance. Soil-improving rotations, strip cropping, contour tillage, and like conservation practices will reduce materially the amount of work necessary for satisfactory terrace maintenance. Careful arrangement of row crops and close-growing vegetation in depressions or on critical slopes between terraces also minimizes maintenance requirements. The ideal objective is to utilize sufficient erosion preventives to minimize soil movement between terraces and thereby help to preserve their effectiveness.

¹ Prepared in cooperation with C. L. Hamilton, agricultural engineer. Field project engineers assisted in securing the illustrations.

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Figure 1

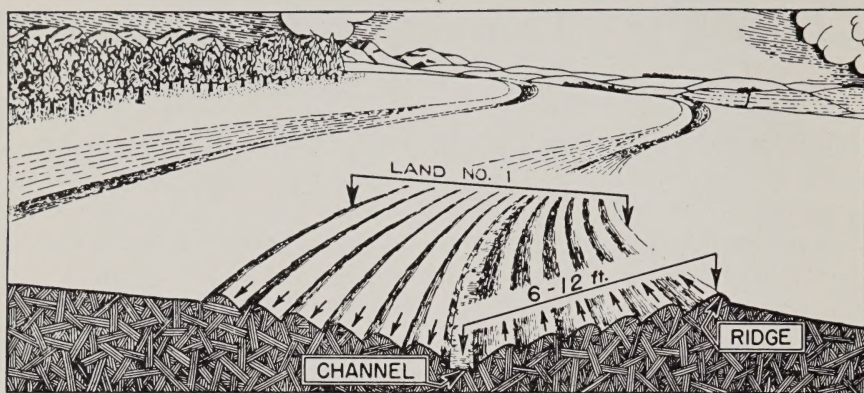
This drainage or channel-type terrace recommended for the South provides controlled surface drainage. The channel has adequate capacity to carry the run-off during heavy rainstorms. The cross-sectional slopes are flat enough to permit the operation of tillage equipment along the terrace without undue hindrance. The maintenance of a suitable channel is of primary importance.

PLOWING TERRACES

TO SECURE and maintain a desirable terrace cross section the plowman must exercise considerable ingenuity in selecting starting and finishing points under various field, slope, and terrace conditions. He must also be familiar with the terrace cross section required and with the principle of developing channels by plowing them out and improving ridge sections by backfurrowing. The whole "trick" is to plow in such a manner across the slope that each trip is effective in bringing the terrace to the right shape and size. A channel with comparatively flat side slopes and a water cross-sectional area of at least 7 to 12 square feet, depending on the slope and extent of drainage above the terrace, should be provided (fig. 1).

Many farmers think of terrace maintenance as extra work. Repairing breaks and washes caused by overtopping of unconditioned terraces is, of course, extra work, but ordinary terrace plowing should be considered a regular farm operation similar to seedbed preparation or the harvesting of crops. When land is prepared by flat breaking or complete plowing, terrace maintenance becomes a part of land preparation at no extra cost.

In most areas it has been found that maintenance should begin immediately after fall crops are harvested. Teams and labor are usually available at this time, and it is important that terraces be brought up to proper size before new crops are planted. When terraced fields are in row crops, it is usually advisable to plow the terraces twice each year. A wide row spacing astride the center of the channel will facilitate plowing out the channel while the crop is on the field.



↑ Figure 2

One-land method of plowing for terrace maintenance.

← Figure 3

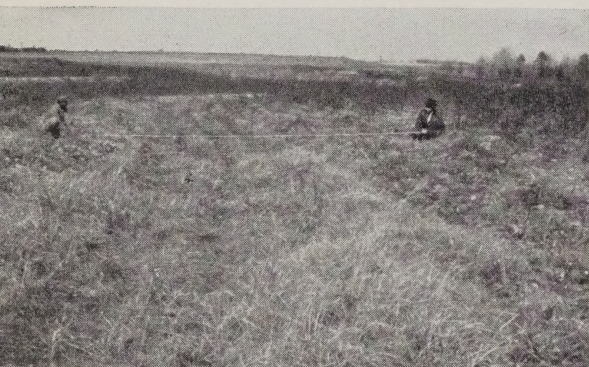
One-land method of plowing terraces:

A—Terrace before maintenance.

B—The first round above the channel.

C—The first trip on the ridge.

D—The terrace channel partly plowed.



The One-Land Method

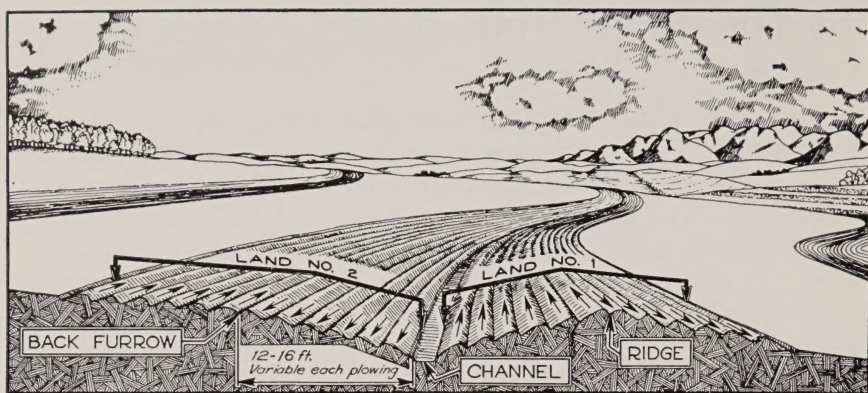
THE ONE-LAND method of terrace maintenance is simply the plowing out of one land in the terrace channel (fig. 2). It is particularly adapted to fields where maintenance work is limited to channel reconditioning. The width of the plowed land will be at least 12 to 24 feet, depending on the slope of the field and the width of channel required. In plowing new terraces with narrow channels, the width of the land should be increased slightly at each plowing until the desired cross section is obtained. This will tend to increase the channel capacity, round out the bottom, and provide flatter side slopes.

The upper edge of the land is located above the desired center of channel a distance equal to that from the center of the channel to the top of the terrace ridge. The first furrow at the upper edge of the land may be thrown uphill, but if it is thrown downhill and the return furrow backfurrowed into it, the tendency for a ridge to form above the channel (fig. 3, *B*) will be minimized. The first furrow slice on the ridge should be thrown downhill so that it just laps the center of the ridge (fig. 3, *C*). Plowing is continued until the channel is plowed out as illustrated in figures 2 and 4.

Figure 4

The reconditioned channel section, after operations shown in figure 3 had been completed.





↑ Figure 5

Two-land method of plowing for terrace maintenance.

← Figure 6

Two-land method of plowing terraces:

- A—Completing the first round of ridge land.
- B—Completing the plowing of first land.
- C—Completing the first round of second land.
- D—Second land partly plowed.



The Two-Land Method

THE TWO-LAND method of terrace plowing is used where it is desirable to recondition the ridge of the terrace, particularly the downhill face, as well as the channel. The widths of the two lands can be adjusted according to the condition of the terrace and the improvement desired.

As illustrated in figures 5 and 6, the first land is plowed by back-furrowing to the terrace ridge. If the first furrow slice is thrown downhill and just laps the center of the ridge, a peaked ridge formation will be obviated. This land is completed when the plowing extends to the desired center of channel (fig. 3B).

The first round of the second land is made by backfurrowing parallel to the channel line and at least 12 to 16 feet up the slope. The location of the backfurrow may be varied at each plowing to prevent the formation of an objectionable ridge above the channel. The second land is completed when the plowing reaches the edge of the first land and the dead furrow between the two lands forms the center of the terrace channel (fig. 7).

An acceptable variation of the two-land method illustrated in figures 5 and 6 can be obtained by first plowing out the terrace channel in the manner described for the one-land method (fig. 2). The second land is plowed by backfurrowing to the ridge. The upper ridge slope will therefore be plowed twice, and no soil will be thrown downhill above the channel. This procedure may be desirable to secure both channel and ridge maintenance where complete field plowing is not intended.

Figure 7

The reconditioned terrace section after operations shown in figure 6 had been completed.





Figure 8

One-land method of maintaining terraces with the one-way disk tiller: *A*—Terrace before maintenance; *B*—the first trip on the terrace ridge; *C*—the first trip on the upper side of channel; *D*—terrace channel after it has been plowed out.

The One-Way Disk Tiller

ONE-WAY disk tillers can be used satisfactorily for terrace maintenance. The same general procedure is followed as in regular terrace plowing. The one-way disk tiller is substituted for the plow, and either the one-land method (fig. 8), or the two-land method can be used in disking. Tractor plows can also be used in a similar manner.

PLOWING TERRACED FIELDS

ON TERRACED FIELDS that are to be completely plowed, the plowing may be begun by using either the one-land or two-land method on the terraces. If the terrace channels are plowed out first by the one-land method (fig. 2), the remaining interval from the top of the terrace ridge to the upper edge of the terrace channel below can be plowed out as a second land. Furrows on the upper half of this interval will be turned up the slope, and those on the lower half will be turned down the slope, leaving a dead furrow in the center. If field plowing is begun by plowing with the two-land method (fig. 5), the remaining interval can be plowed out as a third land, as shown on the cover page. The two methods may be alternated to advantage from year to year to vary the location of dead furrows.

Although the two-way plow is not commonly used, it appears to have some distinct advantages for plowing terraced fields. Its use will eliminate the necessity of backfurrows and dead furrows in undesirable locations and will simplify plowing. Another advantage is that all the furrows between terraces can be thrown up the slope. Turning the furrows uphill tends to offset the downhill soil movement caused by erosion and tillage. This type of plow has been used successfully for plowing terraced land on several of the soil and water conservation experiment stations of the Soil Conservation Service.

Under unusual conditions, where it may not be possible to maintain proper terrace cross sections by the recommended methods of plowing, it will be necessary to do some supplementary terrace rebuilding. The lighter terracing machines, V-drags, or scrapers can ordinarily be used satisfactorily for this work.

Frequently plowing is not extended to the end of the terrace or the outlet end may sometimes be choked by dragging tillage equipment across it. The outlet ends of terraces should therefore not be overlooked in maintenance work. They must be kept open so the water will drain freely from the terrace channels

